

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

#### FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/EP2004/052001

International filing date (day/month/year)  
02.09.2004

Priority date (day/month/year)  
04.10.2003

International Patent Classification (IPC) or both national classification and IPC  
H04Q7/36, H04L12/24, H04L12/56

Applicant  
MOTOROLA INC

#### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

#### 3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITYInternational application No.  
PCT/EP2004/052001

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/052001

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**Box No. II Priority**

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1. ☐ The following document has not been furnished:

- ☐ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. ☒ The International Searching Authority has not been able to consider the validity of the priority claim because a copy of the earlier application whose priority has been claimed was not available to the International Searching Authority at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
4. Additional observations, if necessary:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/052001

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 6-9,21-23

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 6-9,21-23
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/052001

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**Box No. IV Lack of unity of invention**

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1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-5,10-20,24-29

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-5,10-20,25-29
	No: Claims	24
Inventive step (IS)	Yes: Claims	
	No: Claims	1-5,10-20,24-29
Industrial applicability (IA)	Yes: Claims	1-5,10-20,24-29
	No: Claims	

2. Citations and explanations

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2004/052001

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**Box No. VI    Certain documents cited**

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1. Certain published documents (Rules 43*bis*.1 and 70.10)  
and /or
2. Non-written disclosures (Rules 43*bis*.1 and 70.9)  
**see form 210**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2004/052001

**Concerning Section I,  
Basis of the report**

Reference is made to the following documents, which are cited in the International Search Report:

- D1: WO 01/35607 A (VOYAN TECHNOLOGY) 17 May 2001 (2001-05-17)
- D2: US 2003/123420 A1 (SHERLOCK IAN J) 3 July 2003 (2003-07-03)
- D3: WO 01/78434 A (BIGHAM JOHN ; CUTHBERT LAURIE (GB); PARINI CLIVE (GB); QUEEN MARY & WE) 18 October 2001 (2001-10-18)
- D4: US-A-5 594 946 (MENICH BARRY J ET AL) 14 January 1997 (1997-01-14)
- D5: US 2003/016651 A1 (CHU WAI YIN ET AL) 23 January 2003 (2003-01-23)
- D6: WO 98/23101 A (SHTROM VICTOR ; FROST OTIS L (US); ARGO SYSTEMS INC (US); HOGENAUER EU) 28 May 1998 (1998-05-28)
- D7: EP-A-0 621 707 (IBM) 26 October 1994 (1994-10-26)
- D8: EP-A-1 420 602 (HONG KONG APPLIED SCIENCE AND) 19 May 2004 (2004-05-19)

**Concerning Section VI,  
Certain documents cited:**

Certain published documents (see Rule 70.10 PCT)

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
D8=EP-A-1 420 602	19.5.04	14.10.03	21.10.02

**Concerning Section III,  
Non-establishment of opinion with regard to novelty, inventive step and industrial  
applicability**

- 1 As the Applicant has not had an International Search Report drawn up on the second invention (see section IV below), the examination about novelty and inventive step in section V below is restricted to the invention in respect of which a search has already been carried out, in other words the invention first mentioned in the claims (see Rule 66.1 e) PCT).
- 2 The Applicant should therefore have limited the application to the invention

searched and should have excised those parts of the application relating to the other invention.

**Concerning Section IV,**  
**Lack of unity of invention**

- 1 The application lacks unity within the meaning of Rule 13.1 PCT, since it is considered that the following two separate inventions are claimed in the present application, without there being any unifying inventive concept common to both.
- 2 First invention (Claims 1-5,10-20,24-29): Independent **Claims 1, 10, 24 and 26** relate to the provision of a **resource-responsible agent for reducing a level of interference or making a portion of the shared resource available for use**, in particular to an identification function for identifying interference, a resource-responsibility agent responsive to the identification function, and a communication adaption function responsive to the resource-responsibility agent, for reducing a level of interference or making a portion of the shared resource available for use.
- 3 Second invention (Claims 6-9, 21-23): Independent **Claim 21** relates to a **reconciliation and mediation agent for reconciling an interference that a first network causes to (an)other network(s)** by being **operably coupled to and mediating between** the at least two **interfering uncoordinated networks**.

**Remark:**

Dependent claims 6-9 relate to an appliance of the second invention in the first invention.

- 4 These claims do not relate to one invention only, or to a group of inventions so linked by same or corresponding special technical features as to form a single general inventive concept as required by Rule 13.2 PCT.



Concerning Section V.

Reasoned statement with regard to novelty, inventive step or industrial applicability

- 1 The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of **Claim 24** is not novel.
  - 1.1 With respect to this claim, document D1 already discloses a resource-responsible agent that is distributable to a subscriber communication unit or communication network to effect a modification of the wireless subscriber communication unit's or communication network's operational capabilities in response to a trigger related to potential interference or non-availability of a communication resource (see D1, paragraphs 16, 17, 23, 24).
  - 1.2 Accordingly all features of independent Claim 24 are known from D1 and its claimed subject-matter is thus not novel within the meaning of Article 33(2) PCT.
- 2 Furthermore, it is pointed out that should the Applicant dispute the aforementioned novelty objection based on minor differences of interpretation between some of the features of independent Claim 24 and the features of D1, the subject-matter of this independent claim would still not seem to involve an inventive step (see Article 33(3) PCT), considering that D1 aims at the same object as the present application, which similarly can be derived in an obvious manner from a combination of documents D2 and D3 (see discussion in the following paragraph).
- 3 Furthermore, the present application does not meet the requirements of the PCT, because the subject-matter of **Claim 1** does not involve an inventive step in the sense of Article 33(3) PCT.
  - 3.1 Document D2, which is considered to represent the most relevant state of the art, discloses a communication system comprising one or more communication networks supporting communications for a plurality of communication units on a shared communication resource (see D1, paragraphs 4, 25 and figure 1), wherein the communication network comprises:
    - an identification function for identifying interference within or non-availability of a portion of the shared resource (see D1, paragraphs 8, 26, 28),
    - a communication adaption function responsive to the identification function for

determining the location and type of the interferer and for reconfiguring the network for minimizing interference in the network (see D1, paragraphs 8, 9, 26, 31).

- 3.2 From the system described in D2, the subject-matter of independent Claim 1 differs in that there is no resource-responsibility agent responsive to the identification function, and in that it is not mentioned that the detected interference is minimized by reducing a level of interference or making a portion of the shared resource available for use.
- 3.3 As no advantageous effects could be seen, the problem to be solved by the present invention may therefore be regarded as to construct an alternative system for minimizing interference in the network, which is specified in more detail.
- 3.4 No positive contribution to an inventive step can be seen in formulating this particular problem for the following reasons.
- 3.5 The person skilled in the art looking for implementation details in the design of a distributed resource management system as disclosed in D2 (see D2, paragraph 26) would certainly look at documents in the same technical field for guidance as to modifications that it might make. So, he certainly would come across document D1 (see D1, paragraphs 16, 17, 23, 25) or D3 (see D3, page 5, lines 7-14, 19-22, page 8, lines 26f, page 9, lines 21-24, page 10, lines 23-26), which disclose the provision of interacting agents located in the mobile station or nodes in the wireless network (e.g. the base stations, access points) as obvious solution for designing such a distributed architecture.
- 3.6 In addition, in searching for a solution for how to implement the interference minimisation disclosed in D2, the skilled person would come across one of documents D4-D6, which disclose specific examples for minimizing interference by reducing a level of interference or making a portion of the shared resource available for use, i.e.:
- a mobile station causing interference in a neighbour cell, which receives a command to reduce its transmission power (see D4, column 2, lines 52-59, column 8, lines 27-37),
  - the inhibition of transmission of packets in slots if a neighbouring piconet intends to transmit a packet in the same slot on the same frequency (see D5, paragraph

- 16), and  
- a beamformer applied in the receiving device forming a beam reducing the level experienced by the signal to be received (see D6, page 7, lines 3-5, 29 - page 8, line 2).
- 3.7 The claimed implementation of the interference minimisation by reducing a level of interference or making a portion of the shared resource available for use is merely an enumeration of two straightforward possibilities from which the person skilled in the art would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed, and definitely does not involve an inventive step.
- 3.8 Thus, present independent Claim 1 does not fulfill the requirements of Article 33(3) PCT due to the lack of inventive step.
- 4 For the same reasons, the independent **Claim 26**, which whilst lacking the essential feature mentioned in paragraph 8.1 below, corresponds roughly for the method category to independent system Claim 1, does not meet the requirements of Article 33(3) PCT EPC due to the lack of inventive step.
- 5 The subject-matter of **Claims 10 and 25**, which respectively differ from the subject-matter according to Claims 1 and 24 in that a processor is provided in the communication unit for running the resource-responsible agent and the adaption functions, presently appear not to involve an inventive step in the sense of Article 33 (3) PCT for the same reasons as listed under paragraphs 1 and 3 and since such a processor running the agent is common practice in the art (see for instance D7, figure 2 and page 5, lines 9-31, page 8, lines 8, 10f, 33).
- 6 The dependent **Claims 2-5, 11-20 and 27-29** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that their features have already been employed for the same purpose in the prior art (**Claims 2-5, 27**: see D1, paragraph 17, see D2, paragraphs 4, 25, 26, see D5, paragraph 13, **Claims 12, 13**: see D2, paragraph 26, 28, see D3, page 9, lines 16-24, **Claim 14**: see D5, paragraph 16, **Claim 15**: see D2, paragraph 8, 27, **Claims 17, 18**: see paragraph 3.6. above) or consist of slight constructional changes which come within the scope of the customary

practice followed by persons skilled in the art.

- 7 Since the claimed subject-matter is already industrially applied or is already suggested by combinations of the above cited documents, the requirements of Article 33(4) PCT are fulfilled.

8 Remarks concerning clarity of the international application:

- 8.1 Contrary to independent Claim 10, the independent **Claims 1 and 26** do not clearly define the matter for which protection is sought due to the lack of apparently essential features (see Article 6 PCT taken in combination with Rule 6(3)(b) PCT).

Indeed, it is clear from the description that it is essential for the understanding and the correct performance of the invention, that:

- the resource-responsible agent is installed in or forwarded to the resource-irresponsible communication unit which causes the interference detected (see page 9, lines 20-31, page 13, lines 5-10)
- a communication adaption function is in the resource-irresponsible unit, responsive to the resource responsibility agent, for reducing a level of interference or making a portion of the shared resource available for use (see page 9, lines 28-31, page 12, line 19-23, page 13, lines 5-16, page 14, lines 4-8)

Since the independent Claims 1 and 26 lack all (Claim 26) or various (Claim 1) of the just listed features, these claims are accordingly unclear due to the lack of these essential features.

- 8.2 The **Claims 5, 19, 24, 25 and 29** do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not defined. The claims attempt to define the subject-matter in terms of the result to be achieved (namely Claim 5: "such that the resource responsibility agent is able to influence the communication ...", Claim 19: "is able to", Claim 24: "agent that is distributable to effect ...", Claim 25: "processor to receive and modify ...", Claim 29: "for controlling a processor to carry out ...").

The technical features necessary for achieving this result should have been added (for instance in Claim 29: " ... instructions for carrying out all the steps of the

method of Claim 26 or 27.")

- 8.3 Contrary to Article 6 PCT, the features "generating" and "affects" in the apparatus **Claim 2** relate to method-steps rather than imposing any clear restrictions on the apparatus itself.

Similar comments apply to other claims, i.e. **Claim 7**: "reconciles", "determines", **Claim 14**: "restricts", **Claims 17, 18**: "adapts", **Claim 21**: "mediates", **Claim 22**: "determines".

In order to meet the requirements of Article 6 PCT, these claims should be recast by formulations like "*means adapted for doing*", "*adapted to do*", "*arranged to do*" or "*means for doing*" in order to make the intended limitations clear.

- 8.4 A lack of sufficient clarity as required by Article 6 PCT concerns the phrase "adapts in response to the resource-responsibility agent" of **Claim 17**, which does not indicate sufficiently precise and unambiguous, that the adaptation takes place "in response to receipt or activation of the resource-responsible agent" (see for instance Claim 26).
- 8.5 The vague and indefinite formulation of **Claim 13** leaves the reader in doubt as to which object is exchanged,, thereby rendering the definition of the subject-matter of said claim unclear, contrary to Article 6 PCT.
- 8.6 The lack of clarity (see Article 6 PCT) also concerns the phrase "progress of a agent strain" in **Claim 22**, which can be interpreted in different ways.
- 8.7 The wording of **Claim 26** ("upon receipt or of activation") does not form a correct English sentence.

9 Remarks concerning formal defects in the international application:

- In order to avoid misunderstandings by the printing section due to the line crossing all description, claim and drawings-pages, the Applicant should take the opportunity to refile these pages, e.g. when entering the national phase.

- The independent claims should have a preamble that correctly reflects the nearest prior art, presumably that represented by the above noted D2.
- If necessary, the description, especially the pages 5-8, should be brought into conformance with any claims newly filed, e.g. when entering the national phase.
- In order to meet the requirements of Rule 5.1.(a),(ii) PCT, the documents D2, D3 and D4 should have been identified in the description and the relevant background art disclosed therein should have been briefly discussed.
- The attention of the Applicant is finally drawn to the fact that, when entering the national phase, the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (see Articles of the national law corresponding to Article 34.2(b) PCT like e.g. Article 123(2) EPC).
- In order to facilitate the examination of the conformity of the amended application with the requirements of these Articles, the Applicant is requested to clearly identify the amendments carried out, no matter whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based (see also Rule 66.8(a) PCT).